

NOTES ON THE LIFE HISTORY OF
UTETHESIA ORNATRIX BELLA LINNAEUS
(LEPIDOPTERA: ARCTIIDAE) AND ITS PARASITIC
RELATIONSHIP TO *CROTALARIA* (LEGUMINOSAE)¹

D. R. Windler and B. K. Windler

During the years 1966 to 1969 the authors conducted research on the native unifoliolate *Crotalarias* of North America (*C. sagittalis*, et. al.). In 1966 and 1967 extensive field trips were made in the eastern United States and Mexico. While collecting *Crotalarias* many fruits were found to have circular holes in the valves and lack seed. Some green fruits were observed to have larvae sealed inside. Each of the fruits in which larvae were sealed had a circular area on one of its valves which was more membrane-like than the rest of the valve.

Since no adults were collected in the field, an attempt was made to identify the larval forms. Members of the entomological staff at the Field Museum of Natural History in Chicago determined the larvae to be members of the genus *Utethesia*. In order to get a more specific identification of the organism an attempt was made to rear some of the larvae to adulthood. Following instructions obtained from the Field Museum staff, a layer of soil was placed in the bottom of a ventilated jar. A twig was placed in an inclined position above the soil to provide a place for an emerging adult to hang while drying its wings. Fresh cuttings of *Crotalaria sp.* were placed in the jar to provide a food source for the larvae. All caged larvae ate flower petals and young fruit tissue in preference to leaves, stipules, and stems. One of the larvae was successfully reared to adulthood, and was determined to be *Utethesia ornatrix bella* Linnaeus.

In 1968 a common garden planting was made of ca. 1400 unifoliolate *Crotalaria* seedlings in the North Carolina Botanical

¹Contribution number 9 from the Towson State College Herbarium, Baltimore, Maryland 21204.

Garden. During the growing season the garden also became a feed lot for a large *U. o. bella* population. All stages of the life history of the moth were present during the summer and the data recorded by the authors is presented below.

The adult moth is a weak and low flying organism which flies during the day and lays its eggs on the banner of the *Crotalaria* flowers (see Fig. 1). The usual number of eggs is one with two or three occasionally on a banner. Eight eggs were observed on the exterior of one calyx, but this was unusual. Caged egg-laying females each deposited about 200 eggs on the glass walls of the jar in which they were housed. The eggs in the jars were 0.5 to 0.6 mm in diameter and hatched in two to four days at 70° F. After emergence the young larvae normally began feeding on petal

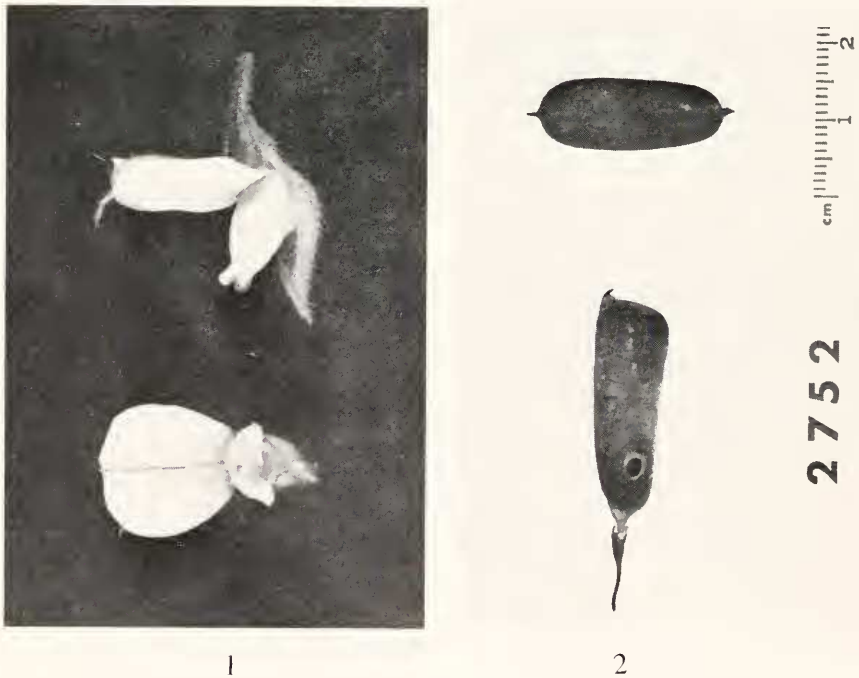


Figure 1. Flower of *Crotalaria* plant grown in the botanical garden in Chapel Hill, North Carolina, showing an egg of *U. oratrix bella* in the position deposited. Figure 2. Fruit of garden grown *Crotalaria* showing the pore from which mature larvae emerge after feeding.

tissue and when the ovary began to enlarge, they chewed their way into it. In most cases only one larva invaded a fruit, but in a few cases two larvae were observed in a single fruit. After the larva entered, a thin membranous covering developed over the entry. The growing black and yellow larvae then fed on the young developing seeds and upon reaching a size adequate for pupation (ca. 2.5 cm long) or upon exhaustion of the food supply, they chewed their way out of the pod through the membrane-covered hole (Fig. 2). If further food was required, the larvae fed on other available young fruits, flowers or foliaceous plant parts in open sunlight. The larval stage lasted about 2 to 2 1/2 weeks. Pupal cases have been observed under leaves near the ground, on the side of culms in thick grass and in other situations with low illumination. Under caged conditions emergence of the adult occurred in 14 to 15 days after the initiation of pupation.

The life span of the free adult was not determined, but in cages some lived over a week without feeding. Kettlewell (1963), who studied the life history of *U. pulchella*, reported that adults lived to about one month when fed honey-water.

Data on variation and hybridization in the *Utethesia ornatix* complex have been published by Pease (1968), but very little information was presented on life histories. Pease did indicate that *U. ornatix* was associated with *Crotalaria* plants of various species.

LITERATURE CITED

- KETTLEWELL, H.B.D. (1963). The Life History of *Utethesia pulchella* L. (Lep.) and its possible adaptive significance. *Entomologist* 96: 102-107.
PEASE, R. W. Jr. (1968). Evolution and Hybridization in the *Utethesia ornatix* complex (Lepidoptera: Arctiidae). *Evolution* 22: 719-735.

ABSTRACT – Observations on the life history of *Utethesia ornatix bella* Linnaeus are presented.

Descriptors: Lepidoptera, Arctiidae, *Utethesia* *Crotalaria*.